XR TIME SYNCHORNIZATION

14000 SERIES TRANSMITTER - INTERNAL ANTENNA

INSTALLATION & USER GUIDE

Primex Wireless

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REGULATORY COMPLIANCE

Federal Communications Commission (FCC) / Industry Canada (IC)

License Requirements

- Operation of the Transmitter requires a FCC/IC operating license, which must be obtained prior to operation.
- FCC licenses must be renewed every 10 years and the IC licenses must be renewed annually.
- As a service, Primex Wireless will file the license application if the end-user desires it. An end-user that does not want Primex Wireless to file for the original site license will be required to complete a waiver form, file the required application, and receive a valid license from the FCC/IC prior to use. If you have any questions or need any assistance, please contact Primex Wireless Technical Support.
- Primex Wireless requires a copy of the licenses in order to complete the factory presets.

Product Compliance

- This device complies with Part 90 and Part 15 of the FCC rules and RSS-210 of Industry Canada.
- Operation of this device is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference, including interference that may cause undesired operation.

Radio Frequency (RF) Exposure

To comply with FCC/IC RF exposure requirements for mobile transmitting devices, the transmitter is only to be used or installed in locations where there are at least 20cm (approximately eight inches) separation distance between the antenna of the transmitter and all persons.

To comply with FCC/IC RF exposure requirements for mobile transmitting devices, the transmitter is only to be used or installed in locations where there are at least 20cm (approximately eight inches) separation distance between the antenna of the transmitter and all persons.

IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE INSTALLATION, OPERATION, OR MAINTENANCE OF PRODUCT.

Some of the following information may not apply to your particular product model; however, as with any electronic product, precautions should be observed during installation, operation, and maintenance.

- Never operate the transmitter without the antenna being properly connected to the transmitter. Operating the transmitter without an antenna can lead to permanent damage of the transmitter and poses a safety risk.
- Do not touch any of the antennas while broadcasting.
- Standard acceptance procedures must be followed prior to operating this equipment in the proximity of life support systems.
- Do not operate the transmitter outdoors, in wet areas were there is standing water, or in areas where there is condensation or the risk of condensation. Use in any of these environments will damage the transmitter and void the warranty.
- Do not open the transmitter to alter the internal elements in any way. This will void the warranty and could lead to unsafe conditions, malfunction, and violations of FCC/IC regulations.

Primex Wireless disclaims any liability or responsibility for the results of improper or unsafe installation practices.

GPS Time Synchronization System Overview - 14000 Series Transmitter

Architecture

The Primex Wireless GPS Time Synchronization System consists of a single 14000 Series Transmitter, GPS Receiver,14000 Satellite Transmitter (optional), and the system clocks, bells and other devices in a single building, to a campus wide deployment.

Time Synchronization

Once the 14000 Series Transmitter has received its time from a GPS Receiver it sets its internal clock. It then transmits time information or schedules via a wireless radio signal to the wireless clocks, bells, and other devices in the system. As a result, the system clocks, bells, and other devices are precisely synchronized to each other and all time, schedules, and events are kept current.

- **Time Source:** The transmitter time is synchronized from a GPS Receiver and then broadcasts that time and event schedules to the system clocks and other devices.
- **Transmit Schedule - Internal Antenna Model Only:** The transmitter broadcasts its synchronized time continuously to the system clocks and devices.

System Components

- **Transmitter:** The transmitter operates on channels with 20kHz bandwidths and 72MHz frequency and is preset to one of the channels licensed by the FCC/IC to minimize interference on these frequencies and channels.
- **GPS Receiver:** The Global Positioning System (GPS) Receiver has a sensitive antenna that receives the Coordinated Universal Time (UTC) from the GPS satellite transmission. The GPS Receiver then sends the time to the transmitter. The GPS Receiver is required to have an unobstructed "view of the sky" to receive the signal.
- **GPS/Transmitter Extension Cable (optional):** A specially designed low-resistance data cable can be used to extend the distance between the GPS Receiver and the transmitter. The GPS Receiver continuously sends the precise time through the cable to the transmitter.
- **Satellite Transmitter (optional):** An optional unit used to supplement and extend signal coverage.

14000 Series Transmitter System Specifications

System Components

1 Watt Transmitter - Internal Antenna Model

- Transmitter
- Power supply
- GPS Receiver
- GPS Receiver Mounting Kit

Optional Equipment

- GPS Extension Cable
- Satellite Transmitter
- 1-Watt Transmitter Rack (18 GA metal, epoxy coated)
- Surge Protector and Battery Back-up system

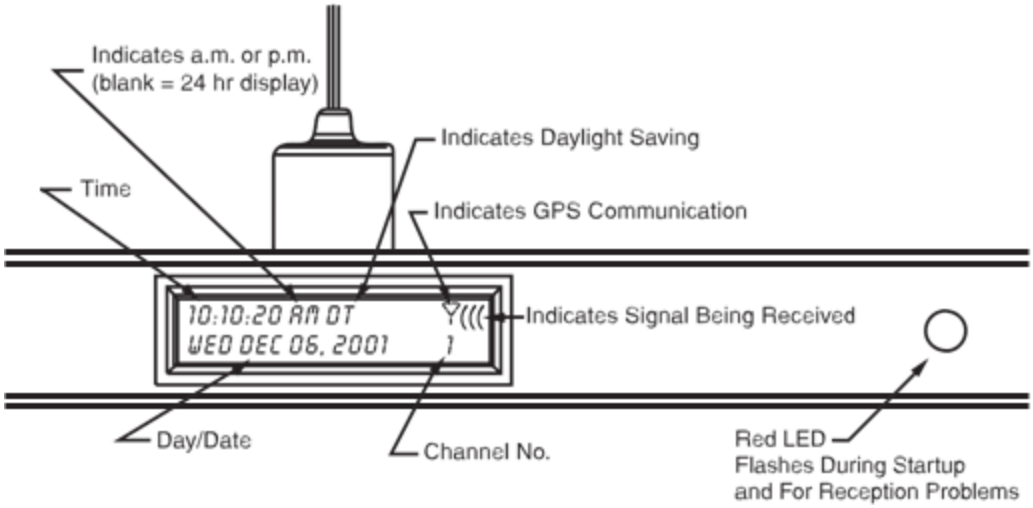
14000 Series Transmitter Specifications

- 1 Watt maximum transmission (at transmitter)
- 72MHz frequency range
- 16 channels available (pre-programmed prior to shipping)
- Daylight Saving Time bypass switch
- Time zone adjustment switch (pre-programmed on 14000-E prior to shipping)
- LCD display for time, date, and signal verification
- Dimensions: 16.0"L x 12.0"W x 1.9"D (40.6 cm x 30.5 cm x 4.8 cm)
- Power Supply:
  - Input: 120 VAC, 50/60 Hz, 0.4 Amp
  - Output: 9 VDC, 2.0 Amp
  - 6' (1.83 m) cord
- Operating Range: 32°- 158°F (0° - 70°C)

Transmitter Display Specifications - 14000 Series

The transmitter has a lighted front display that shows important information.

Figure 1: 14000 Series Transmitter Display



Display Specifications

Table 1: 14000 Transmitter Display Specifications

Component	Description
Time	Displays the precise time received from the GPS Receiver. If AM or PM is on the display, then the 12-hour option is selected. If neither AM nor PM is on the display, then the 24-hour option is selected.
Daylight Saving Time	The letters "DT" (Daylight Saving Time) or "ST" (Standard Time) will be displayed when adjustment for Daylight Saving Time is active. If neither "DT" nor "ST" is displayed, then switch #3 is in the down position and the transmitter will not adjust for Daylight Saving Time.
GPS Communication	The GPS Communication indicator appears when the transmitter is communicating with the GPS Receiver. The parentheses indicate the time signal is being received.
Day/Date	Displays the day and date received from the GPS satellite.
Channel Number	Displays the channel number (1-16) the transmitter is set to.
Red LED	The red LED (Light Emitting Diode) is located on the right side of the front panel of the transmitter. The LED flashes on initial setup until a GPS time signal is received or when a severe GPS Receiver signal problem has occurred and no time data has been received from the GPS Receiver in 48 hours. See the Troubleshooting section of this guide for additional information.

GPS Receiver Specifications

The GPS receiver draws time information from the U.S. Government Satellites, providing the system with Coordinated Universal Time (UTC).

- Mounted to rooftop, pole, or window (not a Low-E glass window).
- GPS receiver sends the UTC time to the transmitter via the NMEA 0183 standard protocol.
- Optional GPS extension cable. A specially designed low-resistance cable is available to extend the distance between GPS receiver and transmitter. The maximum total length of the cable cannot exceed 200' (60.96 m).

Table 2: GPS Receiver Specifications

Parameter	Specification
Cable	10' (3.05 m) cable 50', 100',and 200' (15.24 m, 30.48 m, and 60.69 m) extensions available. The maximum total length of the cable cannot exceed 200' (60.96 m).
Dimensions	2.5"W x .75"H (6.35 cm x 1.91 cm)
Mounting Bracket	3.5"W x 1.4"H x 4.5"D (8.89 cm x 3.56 cm x 11.43 cm) Included for rooftop or window installation.
Weight	0.75 lb. (.34 kg)
Operating Range	-32°- 158°F (-30° - 70°C)

INSTALL 14000 SERIES TRANSMITTER - INTERNAL ANTENNA

Installation and Configuration Overview

- Review the Installation Guidelines and identify the installation location of the transmitter and system components. For additional information, see "Transmitter Installation Location Guidelines" located on page 11.
- Inspect system components to verify packaging includes all supplied parts for each system component and verify no damage has occurred during shipping.
- Do not install or attempt to set the system wireless clocks or devices until the transmitter and its components are installed and configured, the transmitter is powered, its time source is configured, and the transmitter is fully operational.

Summary of Installation

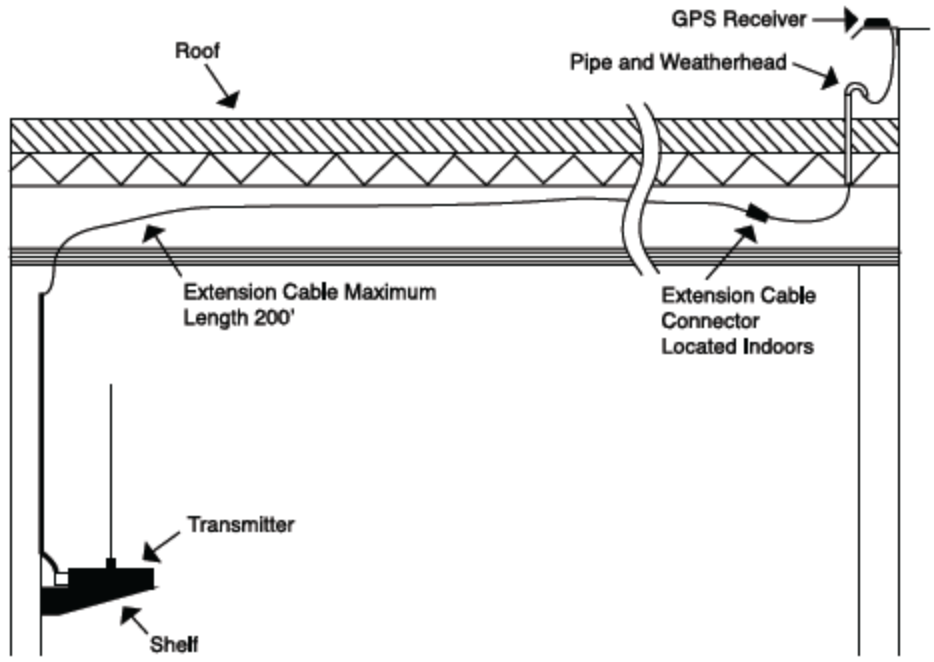
Listed below is a summary of the order in which the transmitter and its components are to be installed and configured.

1. Route the GPS cable.
2. Install the GPS receiver.
3. Connect the transmitter antenna.
4. Connect the transmitter time source.
5. Establish the transmitter settings and verify connections.
6. Verify the system is operational.

Typical System Setup - 14000 Transmitter with Internal Antenna

The illustration below represents a typical system setup.

Figure 2: 1 Watt Internal Antenna - Typical System Setup Illustration



Transmitter Installation Location Guidelines

When planning the system installation, Primex Wireless recommends taking into consideration the below transmitter installation guidelines. Location is extremely important to ensure the best operation of your system.

All Transmitter Models

- In multi-story buildings, installation the transmitter on the top floor will often significantly improve coverage to the lower floors due to the “umbrella” pattern of transmission.
- Transmitter should be located a minimum of two to three feet above the floor.

Internal Antenna Models

- Locate transmitter within 5 feet (1.5 m) from a 120 VAC electrical outlet.
- As a guideline keep transmitting antenna away from large metal objects, such as lockers or filing cabinets. If this is not possible, locate transmitter a minimum of 3.5' (1.07 m) away from metal objects.

GPS Receiver Installation Location Guidelines

Determine a suitable location for the GPS receiver unit. Location is extremely important to ensure the best operation of the system. You must consider the following:

- GPS receiver unit requires a "clear view of the sky" to receive a GPS signal 24 hours a day.
- Typical mounting locations of the GPS receiver unit include the inside of a window (not a Low-E glass window), to an exterior pole or on a rooftop.
- GPS receiver unit should be kept away from large metal objects.
- GPS receiver unit and cable are mounted above any potential standing water, snow depth, leaves or other obstructions and it protected from weather.
- Maximum total distance of the GPS cable to the transmitter cannot exceed 200' (60.96 m).
- If the GPS cable is located outdoors, the use of a gelwrap splice enclosure is strongly recommend.

Tools and Equipment Required - Internal Antenna Transmitter

To install the transmitter and a GPS receiver, you will need the following tools and equipment.

Optional Equipment

- 1-Watt Transmitter Rack (18 GA metal, epoxy coated)
- Surge Protector and Battery Back-up system

GPS Installation

- Standard or hammer drill
- 5/8" concrete drill bit, 18" (45.7 cm) long
- Silicone caulk for GPS cable penetration
- Phillips screwdriver
- Flat head screwdriver

Install GPS Receiver

Complete the steps below to install a GPS receiver. A GPS receiver is required if your system will use GPS as its time source.

Mounting Kit Contents

The GPS Receiver mounting kit is supplied with the following parts. If any of these items are missing, contact Primex Wireless.

Part	Quantity
Mounting bracket	1
GPS 18 LVC and connector	1
M3 x 0.5 x 6 mm pan head screws	2
#6 x 3/8 sheet metal screw	3
Suction cups	3
U-bolt with nuts for mounting on 1" (2.54 cm) pole	1

Mounting the GPS Receiver

1. Verify the kit contents and the installation location meets the installation guidelines.
2. From the outside of the building, route the GPS cable.
   - **Internal antenna transmitter:** route through a 5/8" drilled hole into the building.
   - **External antenna transmitter:** route through a drilled hole into the building.
3. Assemble and mount the GPS receiver unit to an inside of a window (not Low-E glass), an outside pole, or rooftop. The mounting location is required to have a clear view of the sky.

> **CAUTION:** Be sure to follow local building code requirements when attaching the GPS unit to the inside of a window. Clean the windowpane before using the suction cups for attachment.

Figure 3: GPS Receiver Installation Components and Illustration

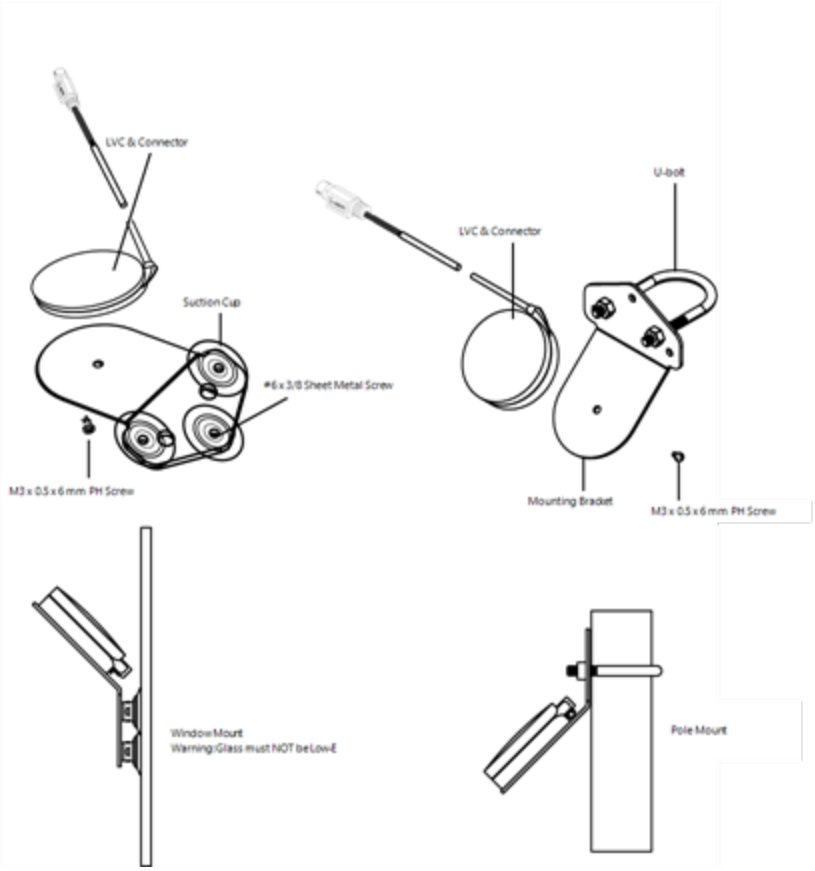
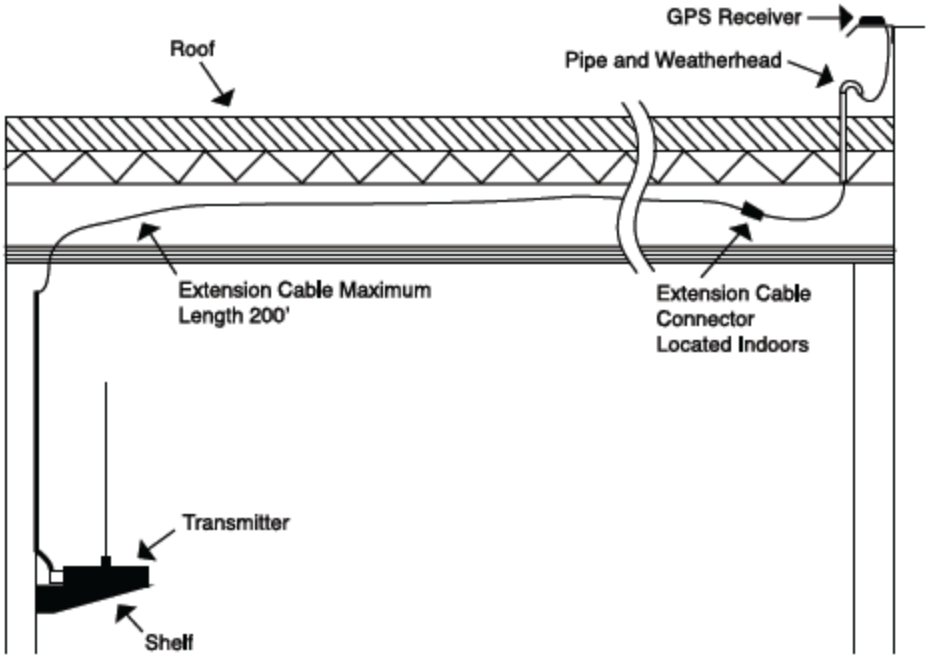


Figure 4: GPS Receiver Mounting Illustration



Configure Switch Settings -14000 Transmitter

1. Set the switch preferences located on the back of the transmitter The transmitter continually checks the position of the switches. The switches select time zone, channel number, 12- or 24-hour display, and the observance of Daylight Saving Time.

Figure 5: 14000 Transmitter - Back View

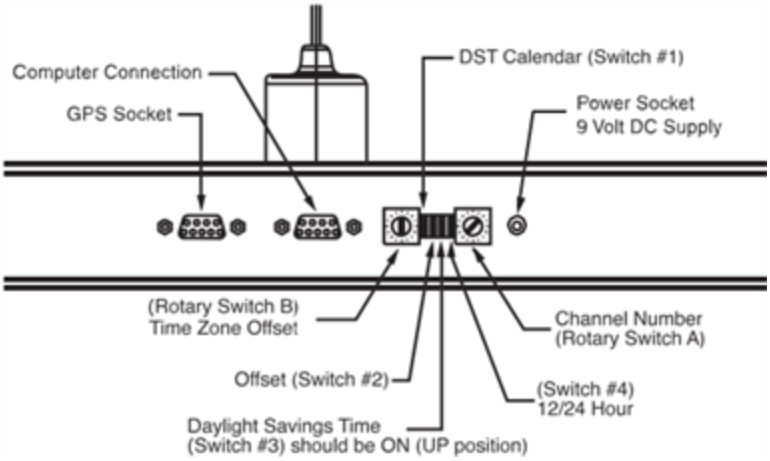


Table 3: 14000 Series Transmitter - Switch/Component Specifications

Switch
Rotary Switch A (channel selection) Warning: Do Not adjust this switch. It is only to be set to the frequency specified on the FCC/IC application. Factory preset to the FM frequency on which the transmitter will broadcast. There are 16 available channels. The chart below explains which switch positions correspond to which channel numbers.

Switch No.	Channel No.	Switch No.	Channel No.
0	16	8	8
1	1	9	9
2	2	A	10
3	3	B	11
4	4	C	12
5	5	D	13
6	6	E	14
7	7	F	15

Rotary Switch B

Sets the time zone. Use a small slotted screwdriver to adjust the rotary switch.

"4" for Atlantic Time Zone

"5" for Eastern Time Zone

"6" for Central Time Zone

"7" for Mountain Time Zone

"8" for Pacific Time Zone

"9" for Alaska Time Zone

"A" for Hawaii Time Zone

Switch #1

Sets the Daylight Saving Time Calendar.

Up to automatically change to the new Daylight Saving Time calendar in 2007.

Down to abide by the old schedule in 2007.

Switch
Switch #2 Sets the direction of UTC offset. Up for U.S. and Canada Down for Europe
Switch #3 Sets the automatic Daylight Saving Time adjustment. Up for automatic Daylight Saving Time changes Down to bypass Daylight Saving Time adjustments
Switch #4 Sets the clock display on the transmitter. Up for 12-hour display Down for 24-hour display

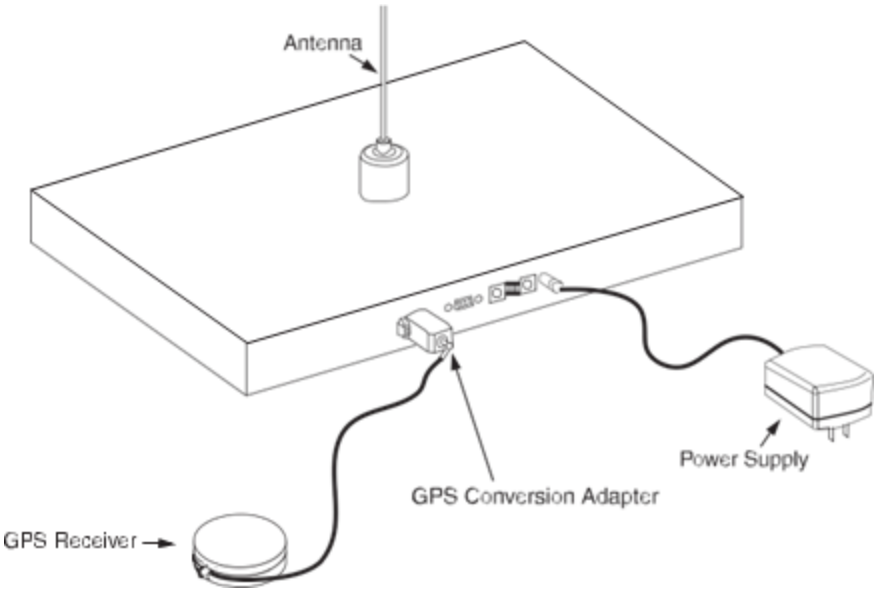
Establish Connections - 14000 Transmitter Internal Antenna

1. Carefully screw the transmitter antenna onto the transmitter. Turn the antenna clockwise, being careful to avoid cross-threading the antenna. The antenna must be snug and flat against the case.

> **CAUTION:** Do not over-tighten the antenna. Hand-tighten only.

2. Plug the included DB9/RJ45 GPS conversion adapter into the GPS socket located in the back of the Transmitter.

Figure 6: 14000 Transmitter - Internal Antenna



3. Plug the GPS cable into the GPS conversion adapter.
4. Plug the supplied 9 Volt 2.0 Amp DC power supply (transformer) into the transmitter.
5. Plug the power supply (transformer) into a 120 VAC outlet.

Verify System is Operational

The final step is to verify the system is operating and functional.

1. Verify a GPS signal has been received.
2. Verify the Time and Date are correct.
3. Verify the Channel Number is set correctly.

14000 Series Transmitter Operation

Basic Operation of the Transmitter - 14000 Transmitter Model

When power is first applied to the transmitter, the front display will light up and show important information.

- Red LED light will flash until the transmitter receives a valid time signal from the GPS Receiver.
- Display will initially show the time as 12:00:00 and will note the software version.
- Transmitter checks the position of the switches on the rear of the transmitter and stores their settings in memory.
- Transmitter then sends information to the GPS Receiver and waits for time information from the GPS Receiver.
- The GPS Communication indicator will appear when the transmitter is receiving a signal from the satellite through the GPS Receiver. If the symbol is not displayed, see Troubleshooting.

The time on the display will increment once each second until the GPS Receiver sends the transmitter a valid time. The GPS Receiver needs to "see" 3 satellites in the sky above before it will send a time signal to the transmitter. This may take up to 15 minutes for a GPS Receiver that has a 360° view of the sky. The length of time is dependent on the location, weather conditions, time of day, etc. In areas where the unit does not have a full view of the sky, due to wall or window installations, building "shadows", etc., this may take up to several hours.

NOTE: The transmitter does not transmit time data until it has received valid time information from the GPS Receiver.

Once the transmitter receives the GPS Receiver time signal, the transmitter sets its internal clock to that time and will display the correct time and date. The transmitter then begins transmission of its internal time once every second. The transmission signal is a maximum one-watt FM signal at approximately 72MHz. The transmitter continually monitors the GPS Receiver and the transmitter updates its internal clock with the time data it receives.

NOTE: If the transmitter does not receive a valid time data from the GPS Receiver for 48 hours, the red LED on the right side of the front panel will flash.

The number to the right side of the display is the channel number to which the transmitter will be transmitting the time signal.

WARNING: The channel number must be the same as the channel number specified on your FCC/IC license. If not, you must immediately adjust the channel to the number that corresponds to the FCC/IC license.

Daylight Saving Time - 14000 Transmitter Model

The transmitter is pre-programmed to automatically make adjustments for Daylight Saving Time.

- The letters "DT" (Daylight Saving Time) or "ST" (Standard Time) will be displayed when adjustment for Daylight Saving Time is active (switch #3 in the up position).
- If neither "DT" nor "ST" is displayed, then switch #3 is in the down position and the transmitter will not adjust for Daylight Saving Time.
- The adjustment to Daylight Saving Time and back to Standard Time take place 2:01 AM on the day of change.

NOTE: The GPS signal does not encode information about Daylight Saving Time. In the spring when the transmitter changes to Daylight Saving Time, the system clocks will adjust by advancing faster than their normal speed to make the adjustment and then return to normal operation. In the fall when the transmitter returns to Standard Time, the system clocks will make the time adjustment and then return to normal operation.

Time Zone - 14000 Transmitter Model

The time zone of your location is not shown on the display. However, when the transmitter has received a valid time from the GPS Receiver, the correct time zone can be checked by verifying that the correct hour is displayed. The transmitter can be set for all 24 time zones around the world and 1/2-hour time zones.

12-Hour or 24-Hour Time - 14000 Transmitter Model

The 12/24-Hour option only affects the transmitter LCD display. If AM or PM is on the display, then the 12-hour option is selected with switch #4. If neither AM nor PM is on the display, then the 24-hour option is selected.

- Analog System Clocks are 12-hour clocks.
- ED Digital System Clocks have a selectable jumper option to display either 12-hour or 24-hour time regardless of the transmitter 12/24 option setting.

Status of GPS Receiver Communication - 14000 Transmitter Model

The status of the GPS Receiver is indicated by the GPS Communication indicator.

- When the "Y"-like symbol is displayed, the GPS Receiver is connected to the transmitter and there is proper communication between the GPS Receiver and the transmitter.
- When the transmitter is receiving valid time data from the GPS Receiver, the three parentheses will sequence in a motion pattern. If these symbols are not displayed, see Troubleshooting.

Power Failure - 14000 Transmitter Model

The system has a fail-safe design. If the failure of a system component or power loss to a component occurs, all downstream components continue normal operations using their own internal time base. If after a specified period, communication has not been restored, a visual that indicates a loss of communication appears and remains until communication is restored.

EXAMPLE: Red flashing LED on the transmitter; flashing colons on LED digital clocks; double stepping of second hand on analog clocks.

TROUBLESHOOTING - 14000 TRANSMITTER MODEL

The topics in this section provided the common troubleshooting procedures for 14000 Series Transmitters.

General Troubleshooting - 14000 Transmitter

Transmitter problems

Recommended action

The first step in troubleshooting the transmitter is to reset the GPS Receiver. If the transmitter fails to receive a GPS signal and is set to time within 15 minutes, please reset the transmitter.

> **NOTE:** The transmitter does not have an ON/OFF switch. To reset the Receiver, unplug the power supply and then plug the unit back in.

Power glitches, line spikes, power interruptions, static discharge or other voltage fluctuations can cause loss of communication with the GPS Receiver if the disruption occurs during the initial setup communication between the transmitter and the GPS.

> **NOTE:** The time of day, view of the sky, weather, solar flares and local interference also influence signal reception and can cause temporary loss of the GPS signal. If reception problems persist, see Signal Reception Problems.

Red LED is flashing

The transmitter Red LED flashes when the unit has not received an updated time signal for 48 hours. It will also flash during initial setup.

Recommended action

1. Check the GPS Receiver and its cable for proper connection to the transmitter and possible damage to the cable. Check the mounting of the GPS Receiver to ensure that the mounting did not slip or change and that it has an unobstructed view of the sky.
2. Check the display panel for the GPS Communication indicator. If the symbol is there, re-check the location of the GPS Receiver and its view of the sky and resolve any obstructions. Then disconnect power from the transmitter, wait five seconds and reconnect power to the transmitter.
3. Check the display panel for the GPS Communication indicator. If the symbol is not there, disconnect power from the transmitter, disconnect the GPS Receiver from the transmitter, and check the GPS cable and connections. Then reconnect the GPS Receiver to the transmitter and reconnect power to the transmitter. If the GPS Communication symbol still does not appear in the display, replace the GPS Receiver.

Extremely weak transmitter power

If the transmitter power is estimated to be a 100 feet or less, it may indicate the transmitter power is extremely weak.

Recommended action

1. Unplug the transmitter and ground yourself to eliminate static electricity.
2. Check to make sure that the antenna is not cross-threaded. The base of the antenna must be flat on the transmitter case.
3. Check to make sure that the antenna rod is secure in the antenna base (hand tighten only).
4. Check to make sure that the base of the antenna is tightly mounted on the transmitter case.
5. Check to make sure that the antenna is not touching anything.
6. Plug in the transmitter. If the transmitter power is still extremely weak, the output stage of the transmitter may have failed. Contact Primex Wireless Technical Support.

Weak signal (limited coverage area)

The coverage area is determined by many factors. One of the primary factors is the transmitted signal compared to the background interference.

For the clocks to receive a clear signal from the transmitter, the signal must be several times stronger than the background interference. Therefore, transmitters located in areas with generally higher background interference will have reduced coverage.

If background interference is causing a problem, please contact Primex Wireless Technical Support.

Display does not light up

The transmitter may not have power.

Recommended action

1. Check the power supply connection to the transmitter and to the 120 VAC outlets.
2. Verify that the AC outlet has power.
3. Verify that the correct power supply is used (9V, 2.0A).

If the problem cannot be corrected, it may be that either the power supply or the transmitter is defective. Contact Primex Technical Support.

Display lights up, but is bank or very faint

Recommended action

Contact Primex Wireless Technical Support. The transmitter may be required to be replaced.

The time/date displayed on the transmitter is incorrect

If the minutes and seconds are correct, but the hours are off or the day is off, then switches #2, #3, or Rotary Switch B are in the wrong position.

Recommended action

Correct the switch settings

Other than for the above reason, or the loss of the GPS signal, the transmitter, whose time is controlled by a GPS signal, should never display the wrong time or date. If such an event occurs, contact Primex Wireless Technical Support.

Red LED is Flashing - 14000 Transmitter Model

The Red LED flashes when the unit has not received an updated time signal for 48 hours. It will also flash during initial setup.

Recommended action

1. Check the GPS Receiver and its cable for proper connection to the transmitter and possible damage to the cable. Check the mounting of the GPS Receiver to ensure that the mounting did not slip or change and that it has an unobstructed view of the sky.
2. Check the display panel for the GPS Communication indicator. If the symbol is there, re-check the location of the GPS Receiver and its view of the sky and resolve any obstructions. Then disconnect power from the transmitter, wait five seconds and reconnect power to the transmitter.
3. Check the display panel for the GPS Communication indicator . If the symbol is not there, disconnect power from the transmitter, disconnect the GPS Receiver from the transmitter, and check the GPS cable and connections. Then reconnect the GPS Receiver to the transmitter and reconnect power to the transmitter. If the GPS Communication symbol still does not appear in the display, replace the GPS Receiver.

Signal Reception Problems - 14000 Transmitter Model

Recommended action

1. Verify that the GPS Receiver is properly connected to the Transmitter.
2. Verify that the GPS Receiver is properly mounted on a non-Low-E glass window or on a rooftop or pole outside with a clear view of the sky.
3. Check to assure that the GPS Communication indicator is showing on the display (looks like a "Y" with a line over it). If this symbol is displayed, then the Transmitter is communicating with the GPS Receiver.
4. If the GPS Communication indicator is not being displayed, then the transmitter, GPS Receiver, or the connection between transmitter and GPS Receiver is defective. Check the GPS cable connections.

   NOTE: The use of unshielded or standard shielded cables to extend the distance between the GPS Receiver and the transmitter beyond 50 feet can cause this failure mode. A special shielded cable with low resistance on the voltage supply line is required for distances over 50 feet. The maximum distance using the special cable is 200 feet. If cable connections are good, replace the GPS Receiver.

5. If the GPS Communication indicator is displayed but the parentheses (((are not flashing, then the problem is with the GPS Receiver or with its signal reception.
6. Check to make sure that the GPS Receiver has a clear view of the sky and that its view is not obstructed.

   NOTE: Double pane Low-E glass windows are coated with a transparent metal layer that reflects infrared heat rays; this will also reflect the GPS signal. The GPS Receiver will not receive the signal through Low-E windows.

   Local interference can affect GPS reception. Try moving the location of the GPS receiver to improve reception. Weather conditions, solar flares, time of day, and exact satellite position may also effect signal reception; however, these conditions are normally of a short duration.

   NOTE: When certain types of electronic light ballasts become defective they may radiate broadband noise, which can interfere with wireless devices. While interference issues are unlikely with the Primex Wireless Clock System, high levels of noise present in the 72-76MHz range could potentially cause clocks which are located far from the transmitter and also within the close proximity of these ballasts to not receive a signal. Very limited instances have occurred in the past, which has only been found to happen when ballasts become defective.

SUPPORT

Technical Support

Prime Wireless Technical Support responds to specific questions about product features, system configuration, and troubleshooting. All support services will be delivered in accordance with your organization's support agreement and warranties.

Contact Technical Support

Before contacting Primex Wireless Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Customer ID
- Problem description
- Device hardware information
- Error messages
- Troubleshooting performed before contacting Primex Wireless
- Recent network changes (SNS products only)

Technical Support	
Telephone	(800) 404-8112
Email	techsupport@primexinc.com
Fax	(262) 248-0061
Hours	7:00 am to 7:00 pm CST | Monday through Friday
Web	www.primexwireless.com

WARRANTY

One Year Limited Warranty

Primex Corporation warrants this product to be free from defects in materials and workmanship for a standard of one year from the date of purchase. Primex will at its sole option, repair or replace any components that fail in normal use. Such repairs or replacements will be made at no charge to the customer for replacement parts. The customer will be responsible for any transportation costs. This warranty does not cover failures due to misuse, abuse, accidental or unauthorized alterations or repairs.

The warranties and remedies contained herein are exclusive and in lieu of all other warranties express or implied or statutory, including any liability arising under any warranty or merchantability or fitness for a particular purpose, implied, statutory or otherwise. In no event shall Primex be liable for any incidental, special, indirect or consequential damages, whether resulting from the use, misuse or inability to use this product or from defects in the product. Some states do not allow this exclusion or limitation of incidental or consequential damages so the above limitations or exclusion may not apply to you.

To obtain warranty service: If after following the instructions in the product guide, you are certain the product is defective, please contact Primex Wireless Technical Support to assist with troubleshooting the issue. If the issue cannot successfully be resolved and the product is under warranty, an RMA (Return Material Authorization) will be generated. The RMA form will be provided via email with detailed instructions for the return. All merchandise returned must be shipped to Primex Wireless, Attn: Returns Dept., N3211 County Road H, Lake Geneva, WI 53147.

Primex Wireless retains the exclusive right to repair or replace the unit at its sole discretion. All merchandise returned must be shipped to Primex Wireless, Attn: Returns Dept., N3211 County Road H, Lake Geneva, WI 53147. Primex Wireless retains the exclusive right to repair or replace the unit at its sole discretion. Such shall be your sole exclusive remedy for any breach of warranty.